Please provide the following information, and submit to the NOAA DM Plan Repository.

Reference to Master DM Plan (if applicable)

As stated in Section IV, Requirement 1.3, DM Plans may be hierarchical. If this DM Plan inherits provisions from a higher-level DM Plan already submitted to the Repository, then this more-specific Plan only needs to provide information that differs from what was provided in the Master DM Plan.

URL of higher-level DM Plan (if any) as submitted to DM Plan Repository:

1. General Description of Data to be Managed

1.1. Name of the Data, data collection Project, or data-producing Program:

2001 USACE LRE Topobathy Lidar: Lake Ontario (NY)

1.2. Summary description of the data:

NOAA Office for Coastal Management received the 2001 Lake Ontario dataset with 2 separate metadata records in 2013 on a hard-drive device from the USGS Center for LiDAR Information Coordination and Knowledge (CLICK); the first record was for the topographic portion of the shoreline from the USACE Detroit Office collected in May of 2001 and a second stating the USACE JALBTCX SHOALS system as having collected the bathymetric points for these same areas in August of 2001. The collection dates and GPS times correspond to each having successfully collected and delivered their respective areas. This record is a combination of the two and will highlight sections from both in order to create a complete and complementary metadata record. The original metadata records will be available by request only.

This data set is the raw topographic LIDAR data set. The data set contains selected base categories of geographic features, and characteristics of these features (X,Y,Z), in digital form. The X,Y represent geographic coordinates and the Z represents elevation in meters. The information was collected by EarthData International, LLC for the U.S. Army Corps of Engineers, Detroit District. This collection was done on the behalf of the Lake Ontario St. Lawrence River Study by the International Joint Commission.

These data were collected by the SHOALS (Scanning Hydrographic Operational Airborne Lidar Survey) system which consists of an airborne laser transmitter/receiver capable of measuring 400 soundings per second. The system operates from a deHavilland DHC-6 Twin Otter flying at altitudes between 200 and 400 meters with a ground speed of about 100 knots. The SHOALS system also includes a ground-based data processing system for calculating accurate horizontal position and water depth. Lidar is an acronym for LIght Detection And Ranging. The system operates by emitting a pulse of light that travels from an airborne platform to the water surface where a small portion of the laser energy is backscattered to the airborne receiver. The remaining energy at the water's surface propagates through the water column and reflects off the sea bottom and back to the airborne detector. The time difference

between the surface return and the bottom return corresponds to water depth. The maximum depth the system is able to sense is related to the complex interaction of radiance of bottom material, incident sun angle and intensity, and the type and quantity of organics or sediments in the water column. As a rule-of-thumb, the SHOALS system should be capable of sensing bottom to depths equal to two or three times the Secchi depth.

1.3. Is this a one-time data collection, or an ongoing series of measurements?
One-time data collection

1.4. Actual or planned temporal coverage of the data:
2001-05-09 to 2001-08

1.5. Actual or planned geographic coverage of the data:
W: -78.289001, E: -76.159606, N: 43.814086, S: 43.227111

1.6. Type(s) of data:
(e.g., digital numeric data, imagery, photographs, video, audio, database, tabular data, etc.)

1.7. Data collection method(s):
(e.g., satellite, airplane, unmanned aerial system, radar, weather station, moored buoy, research vessel, autonomous underwater vehicle, animal tagging, manual surveys, enforcement activities, numerical model, etc.)

1.8. If data are from a NOAA Observing System of Record, indicate name of system:

1.8.1. If data are from another observing system, please specify:

2. Point of Contact for this Data Management Plan (author or maintainer)

2.1. Name:
NOAA Office for Coastal Management (NOAA/OCM)

2.2. Title:
Metadata Contact

2.3. Affiliation or facility:
NOAA Office for Coastal Management (NOAA/OCM)

2.4. E-mail address:
coastal.info@noaa.gov

2.5. Phone number:
(843) 740-1202

3. Responsible Party for Data Management

Program Managers, or their designee, shall be responsible for assuring the proper management of the data produced by their Program. Please indicate the responsible party below.

3.1. Name:

3.2. Title:

Data Steward

4. Resources

Programs must identify resources within their own budget for managing the data they produce.

4.1. Have resources for management of these data been identified?

4.2. Approximate percentage of the budget for these data devoted to data management (specify percentage or "unknown"):

5. Data Lineage and Quality

NOAA has issued Information Quality Guidelines for ensuring and maximizing the quality, objectivity, utility, and integrity of information which it disseminates.

5.1. Processing workflow of the data from collection or acquisition to making it publicly accessible

(describe or provide URL of description):

Process Steps:

- 2001-05-09 00:00:00 - The aircraft was based at Genessee County airport located in Batavia, New York. During the first airborne mission on May 09 Area #1 was completeley collected. For the duration of the data collection there were 2 stationary GPS receivers in constant operation. One receiver was located at the Genessee county airport. The second GPS receiver was operated by Costage Engineering located in Rochester, New York. Both instruments collected GPS phase data at 1 Hz. for the duration of the mission.
- 2001-05-10 00:00:00 - A second flight was executed on May 10, 2001. During this airborne mission Area #2 and Area #3 were completely collected. During the data collection there were 3 stationary GPS receivers in constant operation. One receiver was located at the Oswego County Airport, NY. A second receiver was located at the Williamson-Sodus Airport. The third receiver was located at the Genessee County airport. All 3 instruments collected GPS phase data at 1 Hz. for the duration of the mission.
- 2001-05-09 00:00:00 - LIDAR data was collected at a flying height of 8,000't AMT (above mean terrain), at an average post-spacing of 4 m, at a laser pulse rate of 15 kHz, and with a field-of-view (FOV) of 40 degrees. The average swath width of the LIDAR flight lines was 5800'. Survey data also was collected over the project area to check the vertical accuracy of the LIDAR dataset.
- 2001-08-01 00:00:00 - The SHOALS airborne system acquires a tremendous volume

of raw data during a single mission. The lidar data are unique and require a specialized Data Processing System (DPS) for post-processing. The DPS main funcions 1) import airborne data stored on high density data tape; 2) perform quality control checks on initial depths and horizontal positions; 3) provide display and edit capabilities; 4) calculate depth and position (XYZ) values for each sounding; and 5) output final positions and depths for each sounding.
- 2006-07-07 00:00:00 - Original reach-specific topographic LIDAR data were merged, checked for consistency, and packaged/compressed using the gzip compression utility.
- 2006-07-10 00:00:00 - Original reach-specific bathymetric LIDAR data were merged, checked for consistency, and packaged/compressed using the gzip compression utility.
- 2015-07-01 00:00:00 - The NOAA Office for Coastal Management (OCM) received ASCII text files without classifications or complete attributes for each point. The data were received in UTM Zone 18 (meters) and referenced vertically to NAVD88 (meters) using the Geoid99 model in meters. Three separate areas arrived in OCM performed the following processing for data storage and Digital Coast provisioning purposes: 1. ASCII files were converted from to LAS files with LASTools (txt2las). 2. LAS files were removed of any duplicated points and extraneous points were reclassified to noise. 3. The LAS tiles were then processed to reclassify unclassified topographic points to ground using an existing shoreline footprint from NOAA. 4. The LAS tiles were then processed to reclassify unclassified to bathymetric points for all submerged, open water area points. Processing errors were caused by data uncertainties beyond the reasonable extent of bathymetric depths (for 2001) therefore these points were not reclassified to bathymetric points, class 11. 5. The LAS files were transformed to geographic (decimal degrees), ellipsoidal coordinates (meters) referenced to the Geoid12a model.

5.1.1. If data at different stages of the workflow, or products derived from these data, are subject to a separate data management plan, provide reference to other plan:

5.2. Quality control procedures employed (describe or provide URL of description):

6. Data Documentation

The EDMC Data Documentation Procedural Directive requires that NOAA data be well documented, specifies the use of ISO 19115 and related standards for documentation of new data, and provides links to resources and tools for metadata creation and validation.

6.1. Does metadata comply with EDMC Data Documentation directive?

No

6.1.1. If metadata are non-existent or non-compliant, please explain:

Missing/invalid information:

- 1.6. Type(s) of data
- 1.7. Data collection method(s)
- 3.1. Responsible Party for Data Management
- 4.1. Have resources for management of these data been identified?
- 4.2. Approximate percentage of the budget for these data devoted to data management
- 5.2. Quality control procedures employed
- 7.1. Do these data comply with the Data Access directive?
- 7.1.1. If data are not available or has limitations, has a Waiver been filed?
- 7.1.2. If there are limitations to data access, describe how data are protected
- 7.4. Approximate delay between data collection and dissemination
- 8.1. Actual or planned long-term data archive location
- 8.3. Approximate delay between data collection and submission to an archive facility
- 8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?

6.2. Name of organization or facility providing metadata hosting:

NMFS Office of Science and Technology

6.2.1. If service is needed for metadata hosting, please indicate:

6.3. URL of metadata folder or data catalog, if known:

https://www.fisheries.noaa.gov/inport/item/49880

6.4. Process for producing and maintaining metadata

(describe or provide URL of description):

Metadata produced and maintained in accordance with the NOAA Data Documentation Procedural Directive: https://nosc.noaa.gov/EDMC/DAARWG/docs/EDMC_PD-Data_Documentation_v1.pdf

7. Data Access

NAO 212-15 states that access to environmental data may only be restricted when distribution is explicitly limited by law, regulation, policy (such as those applicable to personally identifiable information or protected critical infrastructure information or proprietary trade information) or by security requirements. The EDMC Data Access Procedural Directive contains specific guidance, recommends the use of open-standard, interoperable, non-proprietary web services, provides information about resources and tools to enable data access, and includes a Waiver to be submitted to justify any approach other than full, unrestricted public access.

7.1. Do these data comply with the Data Access directive?

7.1.1. If the data are not to be made available to the public at all, or with limitations, has a Waiver (Appendix A of Data Access directive) been filed?

7.1.2. If there are limitations to public data access, describe how data are protected from unauthorized access or disclosure:

7.2. Name of organization of facility providing data access:
NOAA Office for Coastal Management (NOAA/OCM)

7.2.1. If data hosting service is needed, please indicate:

7.2.2. URL of data access service, if known:
https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=4700
https://coast.noaa.gov/htdata/lidar1_z/geoid18/data/4700

7.3. Data access methods or services offered:
This data can be obtained on-line at the following URL:

https://coast.noaa.gov/dataviewer/#/lidar/search/where:ID=4700;

7.4. Approximate delay between data collection and dissemination:

7.4.1. If delay is longer than latency of automated processing, indicate under what authority data access is delayed:

8. Data Preservation and Protection
The NOAA Procedure for Scientific Records Appraisal and Archive Approval describes how to identify, appraise and decide what scientific records are to be preserved in a NOAA archive.

8.1. Actual or planned long-term data archive location:
(Specify NCEI-MD, NCEI-CO, NCEI-NC, NCEI-MS, World Data Center (WDC) facility, Other, To Be Determined, Unable to Archive, or No Archiving Intended)

8.1.1. If World Data Center or Other, specify:

8.1.2. If To Be Determined, Unable to Archive or No Archiving Intended, explain:

8.2. Data storage facility prior to being sent to an archive facility (if any):
Office for Coastal Management - Charleston, SC

8.3. Approximate delay between data collection and submission to an archive facility:

8.4. How will the data be protected from accidental or malicious modification or deletion prior to receipt by the archive?
Discuss data back-up, disaster recovery/contingency planning, and off-site data storage

relevant to the data collection

9. Additional Line Office or Staff Office Questions

Line and Staff Offices may extend this template by inserting additional questions in this section.